

the upper part of the Hunter, near the Liverpool range; but this being Saturday I follow on Monday, and from the slow travelling shall soon overtake the party. I am sure you would be delighted to spend a week among the *Menuras*, as I hope to do, it being my intention to encamp near their haunts, in order if possible to obtain their eggs and learn something of their habits and nidification. I paid a short visit to Liverpool Range last winter, and obtained seven or eight specimens; of two I made skeletons, and placed three entire bodies in pickle for dissection. In its œconomy and structure the *Menura* bears little or no relation to the Gallinacæ; its sternum is quite plain with a small ridge; it is a cheerful bird, singing and mocking all the birds of the forest; and of all creatures I have encountered it is the most shy and wary, and difficult to procure, inhabiting precipitous rocky gullies covered with climbing plants and dense vegetation. I find the natives very useful in assisting, being scarcely ever without a tribe or portion of a tribe with me when in their neighbourhood; they are nearly all excellent and dead shots, and are excessively fond of shooting. I frequently give into their hands my best guns, and never find them in the slightest degree disposed to take advantage: I am of course not speaking of those far in the interior, where I shall require to be strictly on the alert."

Mr. Gould also writes that he had sent his principal assistant to Swan River, and has already received from him a large and valuable collection. He expresses an intention of endeavouring to visit New Zealand before returning to Britain, and it will be satisfactory to all his friends and well-wishers to know that at the date of the above letter he and Mrs. Gould continued to enjoy uninterrupted good health.

Extracts from a Journal of the Mission which visited Bootan, in 1837-38, under Captain R. BOILEAU PEMBERTON. By W. GRIFFITH, Esq., Madras Medical Establishment.

[Continued from vol. iv. p. 429.]

FEB. 1st. Our march commenced by descending, gradually at first and then very rapidly, to the Dumree Nuddee; crossing this, which is of small size, at the junction of another torrent, we wound along the face of the mountain forming the right wall of the ravine, ascending very gradually at the same time. The country throughout was of a most barren appearance, the vegetation consisting of coarse grasses, stunted shrubs, and an occasional long-leaved pine.

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path to the Monass, which we crossed by a suspension bridge, the best and largest, I suspect, in Bootan. The bed of this river, which is of large size (the banks which are mostly precipitous being sixty or seventy yards asunder) and of great violence, is 1300 feet below Benka. We then commenced ascending very gradually, following up the north side of the ravine, until we reached Nulka: the march was a very short one. The country was perhaps still more barren than any we had hitherto seen, scarcely any vegetation but coarse grasses occurring. Near Nulka the long-leaved pine recommenced. We passed two miserable villages scarcely exceeded by Nulka, in which we took up our abode. No cultivation was to be seen, with the exception of a small field of rice below Nulka.

Feb. 6th. We descended to the Monass, above which Nulka is situated 600 or 700 feet, and continued along its right bank for a considerable time, passing here and there some very romantic spots, and one or two very precipitous places. On reaching a large torrent, the Koollong, we left the Monass, and ascended the former for a short distance, when we crossed it by a wooden bridge. The remainder of the march consisted of an uninterrupted ascent up a most barren mountain, until we reached Kumna, a small and half-ruined village, 4300 feet above the sea. Little of interest occurred: we passed a small village consisting of two or three houses and a religious building, and two decent patches of rice cultivation. The vegetation throughout was almost tropical, with the exception of the long-leaved fir, which descends frequently as low as 1800 or 2000 feet. I observed two wretched bits of cotton cultivation along the Monass, and some of an edible *Labiata*, one of the most numerous make-shifts ordinarily met with among Hill people.

Feb. 7th. Left for Phullung. We ascended at first a few hundred feet, and then continued winding along at a great height above the Koollong torrent, whose course we followed, ascending gradually at the same time, until we reached our halting-place. As high as 5000 feet the Kumna mountain retained its very barren appearance; at that elevation stunted oaks and rhododendrons commenced, and at 5300 feet the country was well covered with these trees, and the vegetation became entirely northern.

Feb. 8th and 9th. We were detained partly by snow, partly by the non-arrival of our baggage. On the 9th I ascended to a wood of *Pinus excelsa*, the first one I had noticed, and which occurred about 1000 feet above Phullung. The whole country at similar elevations was covered with snow, particularly the downs which we passed after leaving Bulphei. Tassgong was distinctly visible. The woods were

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otherwise composed of oaks and rhododendrons. At Phullung they were endeavouring to keep alive the wild indigo of Assam; a species of *Ruellia*, but its appearance showed that it was unsuited to the climate. The country about Tassangsee is picturesque, with large woods of *Pinus excelsa*, which here has much the habit of a larch; a few villages are visible on the same side of the Koollong, and a little cultivation. The place is said to be famous for its copper manufactures, such for instance as copper caldrons of large dimensions; but I saw nothing indicating the existence of manufactures, unless it were a small village below the castle, and on the same side of the Koollong, which looked for all the world like the habitation of charcoal burners. Snow was visible on the heights around, and especially on a lofty ridge to the north. We found Tassangsee to be very cold, owing to the violent south or south-east winds; the thermometer however did not fall below 34°. Its elevation is 5270 feet, the vegetation entirely northern, consisting of primroses, violets, willows, oaks, rhododendrons, and pines; very fine specimens of weeping cyprus occur near this place.

Feb. 14th. Snow became plentiful as we approached Sanah. This we found to be a ruined village, only containing one habitable house. It is situated on an open sward, surrounded with rich woods of oaks and rhododendrons, yews, bamboos, &c. Its elevation is very nearly 8000 feet.

Feb. 15th. We started at the break of day, as we had been told that the march was a long and difficult one. We proceeded at first over undulating ground, either with swardy spots, or through romantic lanes; we then ascended an open grassy knoll, after passing which we came on rather deep snow. The ascent continued steep and uninterrupted until we reached the summit of a ridge 11,000 feet high. Although we had been told that each ascent was the last, we found that another ridge was still before us, still steeper than the preceding one, and it was late in the day before we reached its summit, which was found to be nearly 12,500 feet. Above 9500 feet, the height of the summit of the grassy knoll before alluded to, the snow was deep; above 10,000 feet all the trees were covered with hoar-frost, and icicles were by no means uncommon. The appearance of the black pines, which we always met with at great elevations, was rendered very striking by the hoar-frost. Everything looked desolate, scarce a flower was to be seen, and the occasional fall of hail and sleet added to the universal gloom. The descent from the ridge was for the first 1500 feet or thereabout, most steep, chiefly down zigzag paths, that had been built up the faces of pre-

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cupices ; and the ground was so slippery, the surface snow being frozen into ice, that falls were very frequent, but happily not attended with injury. It then became less steep, the path running along swardy ridges or through woods. In the evening I came on the coolies, who had halted at a place evidently often used for that purpose, and who positively refused to proceed a single step further. But as Captain Pemberton and Lieut. Blake had proceeded on, I determined on following them, hoping that my departure would stimulate the coolies to further exertions. After passing over about a mile of open swardy ground I found myself benighted on the borders of a wood, into which I plunged in the hopes of meeting my companions ; after proceeding for about half an hour slipping, sliding, and falling in all imaginable directions, and obtaining no answers to my repeated halloos ; after having been plainly informed that I was a blockhead by a hurkarah, who as long as it was light professed to follow me to the death—"Master go on, and I will follow thee to the last gasp with love and loyalty"—I thought it best to attempt returning, and after considerable difficulty succeeded in reaching the coolies at 8½ P.M., when I spread my bedding under a tree, too glad to find one source of comfort. I resumed the march early next morning, and overtook my companions about a mile beyond the furthest point I had reached ; and as I expected, found that they had passed the night in great discomfort. We soon found how impossible it would have been for the coolies to have proceeded at night, as the ground was so excessively slippery from the half-melted snow and from its clayey nature, that it was as much as they could do to keep their legs in open day-light. We continued descending uninterruptedly, and almost entirely through the same wood, until we reached Singé at 9½ A.M. The total distance of the march was 15 miles—the greatest amount of ascent was about 4500 feet, of descent 6100 feet. We remained at Singé up to the 18th, at which time some coolies still remained behind. On the night of the 17th snow fell all around, though not within 1000 feet of Singé. The comparative mildness of the climate here was otherwise indicated by the abundance of rice cultivation about and below it. It stands on the border of the wooded and grassy tracts so well marked in the interior of Bootan, at least in this direction, and about midway on the left side of a very deep ravine, drained by the river Koosee. On both sides of this villages were plentiful ; on the opposite or western side alone I counted about twenty ; about all there is much cultivation of rice and wheat ; the surface of the earth where untilled being covered with grassy vegetation and low shrubs.

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Feb. 18th. After arriving at the Koosee the country became barren, resembling much that about Tassgong, and the only cultivation we passed in this portion of the march was some rice along the bed of that river. The village itself is a poor one, most of the inhabitants being quartered in the castle. We had an interview with the Soobah in an open place close to the village : it was conducted with much less state than that at Tassgong. We found the Soobah to be very young, in fact almost a boy ; he behaved civilly and without any pretension. There is but little cultivation about this place, which is 4520 feet above the sea, and the surrounding mountains are very barren. About the village I noticed a few stunted sugar-canes, some peach and orange trees, the castor-oil plant, and a betel vine or two. The only fine trees near the place were weeping cypresses ; the simul also occurs.

Feb. 23rd. After the usual annoyances about coolies and ponies, we left Singlang without regret, for it was a most uninteresting place. We commenced by an ascent of about 1000 feet, and then continued following the course of the Koosee *downwards*. The road throughout was good and evidently well frequented. At an elevation of about 6000 feet we came on open woods of somewhat stunted oaks and rhododendrons ; the only well-wooded parts we met with being such ravines as afforded exit to water-courses. We passed several villages in the latter part of the march, some containing 20 and 30 houses, and met with a good deal of cultivation as we traversed that tract, the improved appearance of which struck us so much from Singé. Tumashoo is an ordinary-sized village, about 5000 feet in elevation. We were lodged in the Dhoompá's house.

Feb. 24th. Left for Oonjar, ascending at first over sward or through a fir wood for about 800 feet, when we crossed a ridge, and thence descended until we came to a small torrent which we crossed ; thence we ascended gradually, until we surmounted a ridge 7300 feet high ; descending thence very gradually until we came over Oonjar, to which place we descended by a steep by-path for a few hundred feet. The features of the country were precisely the same. At the elevation of 7300 feet the woods became finer, consisting of oaks and rhododendrons, rendered more picturesque from being covered with mosses, and a gray pendulous lichen, a sure indication of considerable elevation. Various temples and monumental walls were passed, and several average-sized villages seen in various directions. A fine field of peas in full blossom was noticed at 5500 feet, but otherwise little cultivation occurred. Oonjar is a small village at an elevation of 6370 feet.

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Feb. 23rd. After the usual annoyances about coolies and ponies, we left Singlang without regret, for it was a most uninteresting place. We commenced by an ascent of about 1000 feet, and then continued following the course of the Koosee *downwards*. The road throughout was good and evidently well frequented. At an elevation of about 6000 feet we came on open woods of somewhat stunted oaks and rhododendrons; the only well-wooded parts we met with being such ravines as afforded exit to water-courses. We passed several villages in the latter part of the march, some containing 20 and 30 houses, and met with a good deal of cultivation as we traversed that tract, the improved appearance of which struck us so much from Singé. Tumashoo is an ordinary-sized village, about 5000 feet in elevation. We were lodged in the Dhoompá's house.

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Feb. 25th. Leaving this place, we continued winding along nearly at the same altitude until we descended to the river Oonjar, which drains the ravine, on the right flank of which the village is situated. This river, which is of moderate size, is crossed twice within 200 yards. From the second bridge one of the greatest ascents we had yet encountered commenced; it was excessively steep at first, but subsequently became more gradual. It only terminated with our arrival at the halting-place, which we denominated "St. Gothard," but which is known by the name Peeme. Its elevation is about 9700 feet, and we had ascended from the bridge as much as 4350 feet. Snow commenced at 7500 feet, and became heavy at 8500 feet.

Feb. 26th. We continued the ascent through heavy snow. For the first 1000 feet it was easy enough, but after that increased much in difficulty. Great part of the path was built up faces of sheer precipices. The remainder of the ascent was very gradual, but continued for about $1\frac{1}{2}$ mile; and I consider the actual pass from which we commenced descending to be at least 12,600 feet. The descent was at first very rapid, passing down the bold face of the mountain, which was covered entirely with stout shrubby rhododendrons. We then descended gradually through a fine wood of the black fir. On recommencing the steep descent we passed over swardy patches surrounded by fir woods, and we continued through similar tracts until within 1000 feet of our halting-place, to which we descended over bare sward. From the summit of Rodoola a brief gleam of sunshine gave us a bird's-eye view of equally lofty ridges running in every direction, all covered with heavy snow. The vegetation of the ascent was very varied, the woods consisting of oaks, rhododendrons, and bamboos, up to nearly 11,000 feet. Beyond this the chief tree was the black fir; junipers, alpine polygonums, a species of rhubarb, and many other alpine forms presented themselves in the shape of the withered remains of the previous season of active vegetation. That on the descent was less varied, the trees being nearly limited to three species of pines, of which the black fir scarcely descended below 11,600 feet, when it was succeeded by a more elegant larch-like species, which I believe is *Pinus Smithiana*; this again ceased towards an altitude of 9500 feet, when its place was occupied by *Pinus excelsa*, now a familiar form. We found Bhoomlungtung to occupy a portion of rather a fine valley. The valley is for the most part occupied by wheat fields, but the prospect of a crop appeared to me very faint. Two or three villages occur close to Bhoomlungtung. The tillage was better than any we had seen, the fields being

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[To be continued.]

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Observations on the Blood Corpuscles, or Red Particles, of the Mammiferous Animals. By George Gulliver, F.R.S., F.Z.S., Assistant Surgeon to the Royal Regiment of Horse Guards.—*Memoirs in the London and Edinburgh Philosophical Magazine for Jan. Feb. and March 1840.*

As we fully concur in the justice of the author's remark, that a complete history of the blood-corpuscles would form a very acceptable addition to anatomical and zoological science, we proceed to give a short abstract of his observations, referring such of our readers as may be desirous of more complete information on the subject to his original memoirs.

To persons who are but imperfectly acquainted with the blood corpuscles, it might appear that these bodies are mere microscopic curiosities, rather to be classed with some of the apocryphal "wonders of the microscope" than regarded as objects of sober philosophic research. However, some of the most distinguished philosophers of the present day have expressed their conviction of the importance of the red particles of the blood, and we conceive that this view derives additional force from the fact that these curious bodies have now been observed and found to possess regular and determinate forms in no less than 136 different species of the class mammalia alone, for such is the number in which Mr. Gulliver has already measured and examined the blood corpuscles. They had only been described in a few of the mammalia previously to the publication of his researches; but as he promises to continue his observations, and Professor Wagner and M. Mandl, besides some other eminent physio-

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